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REMARKS

This application has been carefully reviewed in light of the Office Action dated July 22, 2004. Applicant has canceled claims 9, 19, and 20. Reconsideration and favorable action in this case are respectfully requested.

The Examiner has rejected claims 1-3, 5-10, 12, and 14-23 under 35 U.S.C. §102(b) as being unpatentable over U.S. Pat. No. 4,944,009 to Micali. Applicant has reviewed this reference in detail and does not believe that it discloses or makes obvious the invention as claimed.

Claims 10 and 22 were amended to correct a typographical error.

The Micali reference discloses system where a seed random sequence is extended in successive nodes of a tree structure. At each node, an input sequence is expanded to an output sequence substantially greater than the length of the input sequence (Abstract). A tree structure is shown in Figures 2 and 3, using four generators 12 (G0-G3). A first PN sequence is generated by G0 using a random seed in its memory RAM_0. Half of the generated PN sequence is stored in RAM_0 and half is stored in RAM_2. The two halves of the PN sequence are each used to generate a PN sequence. This time, half of the PN sequence generated by G0 is stored in RAM_0 and the other half is stored in RAM_1. Similarly, half of the PN sequence generated by G2 is stored in RAM_2 and the other half is stored in RAM_3. These four (half) PN sequences are then used as seeds to generate four more PN sequences (column 3, lines 28-53). The outputs of the processors are "simply concatenated" (column 56, lines 36-40).

Independent claim 1 states:

> A method of encrypting a digital signal comprising:
> generating a plurality of pseudo-noise sequences;
> inserting a segment of a first pseudo-noise sequence into a second

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> pseudo-noise sequence, or portion thereof, *at an arbitrary position in said*
> *second pseudo-noise sequence* to generate an augmented pseudo-noise
> sequence; and
>> encrypting a data stream using the augmented pseudo-noise sequence.

The Micali reference does not teach inserting a segment of a first pseudo-noise sequence into a second pseudo-noise sequence, or portion thereof, at an arbitrary position in the second pseudo-noise sequence. Instead, at the bottom of the iteration tree, the final PN sequences are *concatenated*. Thus, Micali does not teach insertion of one sequence into another and specifically does not teach insertion of one sequence into an arbitrary position in another.

The Examiner states that "the concatenation in Micali is arbitrary with no distinct pattern", citing Column 6, lines 33-40 and Figure 2. Applicant strongly disagrees. First, as can be seen in Figure 2, the concatenation is completely ordered (see the correspondence between the outputs at the bottom level of the iteration tree and the y terms). Second, in the section cited by the Examiner, Micali does not state that the *concatenation* has no distinct pattern (i.e., the order of the concatenation is not distinct); rather, Micali states that the *concatenated output* of all nodes of the iteration tree is pseudo-random. Third, the term "concatenation", given its normal meaning of "joining two character strings end to end" (definition provided by en.wikipedia.org) explicitly specifies that one PN sequence is not inserted into another PN sequence at an arbitrary position.

The present invention provides a significant advantage over Micali. The augmented PN sequence of the present invention can be easily changed without changing the PN sequences used to generated the augmented PN sequence. Hence, using simple hardware, an augmented sequence can be generated that is nearly impossible to reverse-engineer by an unauthorized recipient.

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Accordingly, Applicant respectfully requests allowance of claim 1 and dependent claims 2-3 and 5-8.

For the reasons stated above, Applicant believes that independent claim 10 and dependent claims 12 and 14-18 are also allowable.

With regard to claims 21 and 23, Micali does not provide for synchronizing the augmented PN sequence to a reference clock relative to an arbitrary offset. For example, in Figure 2 of the present application, a reference clock REF_CT provides a count for each word of a sequence. The first word of the augmented PN sequence does not necessarily start at count "0"; this first word may be generated at a count equal to "OFFSET". This is not shown in Micali. Applicant respectfully requests claims 21 and 23 be allowed.

The Commissioner is hereby authorized to charge any fees or credit any overpayment, including extension fees, to Deposit Account No. 20-0668 of Texas Instruments Incorporated.
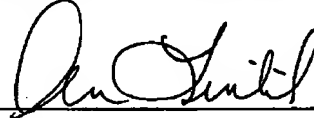
Applicant has made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Alan W. Lintel, Applicant's Attorney at (972) 664-9595 so that such issues may be resolved as expeditiously as possible.

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   For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

               Respectfully Submitted,

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